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CENTRAL INTELLIGENCE AGENCY
WASHINGTON, D.C. 20505

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15 May 1975

MEMORANDUM FOR: James Placke
Director, Office of Food Policy and Programs
Bureau of Economic and Business Affairs
Department of State

SUBJECT : Transmittal of Paper, "USSR: Supply and Demand for Grain"

1. Attached is our paper, "USSR: Supply and Demand for Grain" to be used as background in preparing the US position on a world grain reserve system. It reviews the history of the Soviet grain balance since 1960 and provides estimates through 1985. Possible Soviet participation in a world grain reserve system is also discussed.

2. Comments and queries are welcomed and may be directed to

Office of Economic Research

Attachment:
As stated

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USSR: Supply and Demand for Grain

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USSR: Supply and Demand for Grain

Summary and Conclusions

Past Soviet failures to produce grain in excess of requirements have spurred imports and have thwarted efforts to build and maintain substantial grain stocks. During 1960-73 more than 7 million metric tons of grain were bought from the West in each of five years, and grain output plus imports are estimated to have fallen short of total requirements in nine years, requiring stock drawdowns.

During the next decade the Soviet need for grain is expected to increase at a slower rate than in 1960-73 and to lie within the range of projected output. For individual years, however, output probably will fall short of requirements because of adverse weather and a continuing inability to grow sufficient grains such as corn. The USSR thus may continue to import sizable amounts of feed grains but major purchases of wheat are likely only following years of severe, weather-related crop shortfalls.

Moscow's interest in the formation of a world grain reserve system is likely -- particularly if such a system penalizes non-participants -- because of their recurrent need for imports. The Soviets have indicated a willingness to hold grain reserves. However, their past reluctance to

abide by provisions of international commodity agreements and their continued unwillingness to provide data on reserves, output and requirements may limit their participation.

Soviet Grain Balance, 1960-73

Grain output in the USSR grew at an average annual rate of 4.4% from 1960-73, but with large annual fluctuations (see Table 1). For example, 1973 output, a year of favorable weather, was one-third larger than the drought-striken 1972 crop. Although bread grains still account for nearly three-fifths of total production, the share of feed grains has risen, reflecting the increasing importance of the livestock sector.

The demand for grain has grown rapidly since 1960, and in recent years has outstripped output growth; average annual grain production in 1970-72 was 12% greater than in 1967-69 while domestic consumption increased by nearly 19%. The composition of grain demand has changed radically since 1960; its use for food has increased only moderately -- 25% -- while its use as livestock feed has grown by 125%. The USSR produces ample grain to feed the population. Even in years of harvest failure, food requirements consume only about one-third of total production. In the early 1960's

Table 1

Soviet Grain Balance

(Million metric tons)

	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973
Production	125.6	130.9	140.1	107.4	152.0	121.1	171.0	147.7	169.3	162.3	186.8	181.2	168.2	222.5
Domestic Requirements	118.7	125.8	129.8	119.2	115.8	132.6	139.0	143.3	149.4	155.0	172.8	181.0	180.7	190.1
of which														
Food	48.1	49.1	49.6	48.0	48.5	50.3	53.3	53.7	54.0	54.2	57.5	58.6	59.4	60.0
Feed	43.7	48.8	50.2	41.2	37.7	53.8	57.9	61.6	66.1	74.9	87.9	93.4	92.8	99.0
Amount short (-) or in excess (+) of domestic requirements	+6.9	+5.1	+10.3	-11.8	36.2	-11.5	+32.0	+4.4	+19.9	+5.3	+14.0	+0.2	-12.5	+32.4
Imports	1.0	0.8	0.6	3.8	9.2	7.1	8.6	3.1	2.4	1.4	3.0	4.1	15.7	24.5
Exports	6.9	7.9	8.3	6.7	4.0	5.3	4.4	6.9	6.4	8.5	6.8	9.7	5.5	6.2
Production plus imports minus total requirements	1.0	-2.0	2.6	-14.7	41.4	-9.7	36.2	0.6	15.9	-1.8	10.2	-5.4	-2.3	50.7
Minus 3% loss	3.8	3.9	4.2	3.2	4.6	3.6	5.1	4.4	5.1	4.9	5.6	5.4	5.0	6.7
Stock Changes	-2.8	-5.9	-1.6	-17.9	36.8	-13.3	31.1	-3.8	10.8	-6.7	4.6	-10.8	-7.3	44.0

one-third of the total grain crop was fed to livestock but they were a residual claimant; in poor harvest years, rations were cut and livestock slaughtered. Now the livestock program has higher priority, and imports have prevented massive slaughtering. As a result, almost 100 million tons of grain were fed to livestock in 1973 -- more than twice the amount fed in 1960. The use of grain as an industrial raw material, for seed and for exports is taking a declining share of total output.

Subtracting estimates of domestic requirements from production reveals a residual of enormous variability. Since 1960 the surplus has been over 30 million tons in 1964, 1966 and 1973 while a shortfall of about 12 million occurred in 1963, 1965 and 1972. After each of the deficit years, imports increased substantially. Although imports reduced the need to use reserves, stocks are estimated to have been drawn down in nine of the 14 years prior to 1974.

Soviet Grain Balance, 1976-85

Many variables -- weather, fertilizer use, area sown -- affect the harvest, making accurate forecasts difficult. Different sets of assumptions can be made, however, which yield a probable range of grain output. These estimates are only preliminary and further research will be necessary

to establish their validity. One estimate of grain output can be derived from the historical trend. This would represent the most conservative case as it presumes that fertilizer use and its effects on grain yields will grow at the same rate as in the past. In fact, this is much lower than the application rates planned by the Soviets. Based on such a linear time trend fitted to reported yields of 11 grains and pulses during 1958-71, average annual output in 1976-80 would be about 220 million tons and 246 million tons annually in 1981-85 (see Table 2).

Taking the opposite extreme, it is assumed that all Soviet plans for fertilizer application are met and that average weather prevails. In this "best case", output could reach an average of 255 million tons annually in 1976-80 and an average of 320 million tons per year in 1981-85. A third case assumes an intermediate -- and probably more realistic -- position between the two extremes -- 237.5 million tons per year in 1976-80 and 283 million tons in 1981-85.

The demand for Soviet grain from 1976-85 is estimated to increase at an average annual rate of about 3% compared with a 4 1/2% average yearly rate recorded since 1955. Nearly all growth in consumption will come from the rising use of grain for livestock feed. Based on Soviet livestock goals and future feeding rates, 2 of every 3 tons of grain pro-

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Table 2

Projected Soviet Grain Balance

	Annual average, Million metric tons	
	1976-80	1981-85
Gross Output		
Case 1 - Historical Trend	220	246
Case 2 - Optimal Conditions	255	320
Case 3 - Midpoint	237.5	283
Total Requirements (Domestic & Export)	220-235	240-270
Amount Short (-) or in excess (+) of Requirements		
Case 1	0 to -15	+6 to -24
Case 2	+35 to +20	+80 to +50
Case 3	+17.5 to +2.5	+43 to +13

duced in 1985 could go to the livestock program. The use of grain for food will continue to take a smaller part of total output -- 25% in 1985 compared with an average of 30% in 1972-73. Uses other than for food and feed will also continue their decline as a percentage of the total. Thus annual average requirements for 1976-80 are estimated to be 220-235 million tons and 240-270 million tons in 1981-85. In general corroboration of this estimate, Soviet minister of Agriculture Polyanskiy recently said, "In the near future we must produce, on average, about a ton of grain per head of the population in the country. Consequently, we are speaking now about gross output of 250 million tons and above."

When estimates of future output and requirements are compared, the Soviet position looks relatively more favorable than during the past 15 years. For the period as a whole only a small amount of imports would be required and reserves could be built, except for Case 1. For individual years, however, output could still fall short of requirements, creating a demand for imports, because:

- Soviet grain output will continue to be subject to fluctuation although extreme swings may be ironed out by the greater use of chemicals and increased output from areas with more reliable rainfall.

- The kinds of grain produced may not satisfy Soviet requirements. Sufficient high-energy feed grains such as corn probably cannot be grown in the next decade.

Soviet Participation in a World Grain Reserve System

Since the Soviets need periodic access to world grain supplies, it would appear to their advantage to be interested in a world reserve system, especially if such a system penalizes non-participants. Past Soviet actions offer some clues to their probable response to the main provisions of a grain reserves agreement.

(1) Specific reserve targets*

The Soviets seem to have no objections to holding large internal reserves. In the past they have consistently attempted to build stocks rather than depend on world markets but have been frustrated by their inability to produce ahead of demand. Soviet officials claim that their goal is to accumulate stocks equivalent to a year's requirements -- currently about 210 million tons. However, they lack the storage capacity required to hold such a supply in addition to a current crop. In 1973 total storage capacity

* These three provisions are contained in the "Options Paper on Grain Reserves" issued to the members of the IFRG Working Group on 11 April 75.

was about 225 million tons. Apparently in response to bumper harvests in 1973-74 and high losses caused by poor storage, the Soviets have just embarked on a major grain storage construction program. They plan to construct 40 million tons of storage capacity in 1976-80.

(2) A system of information exchange and consultation

Historically, the Soviets have been uncooperative in providing the kinds of information that would be essential to the smooth operation of a grain reserve agreement. Information on the size of grain stocks and policies affecting them are not published as it comes under the State Secrets Act of the USSR. Although statistics on crop production and demand are not as highly classified, the Soviets remain unwilling to reveal forward estimates. The US-USSR Agricultural Cooperation Agreement signed in 1973 specified the exchange of forward estimates on consumption, production, demand and trade of major agricultural commodities. Only plan figures have been provided. In the past the USSR has provided to international commodity agreements only information "within the limits of the statistical data published in the country."

(3) Guidelines or rules for achieving reserve targets and for the release and replenishment of reserves

Moscow has signed a number of international agricultural commodity agreements but has carefully delimited its partici-

pation in the rules of the game. For example, the USSR has never accepted production controls and has excluded from consideration its trade with other Communist countries. A tightly controlled grain reserves system, therefore, would seem incompatible with its policies, particularly if Moscow perceives that it will be less dependent on world grain supplies in the future.